MOUSE SOLUBLE IL-1 R4 ELISA KIT

For the quantitative determination of mouse soluble IL-1 R4 concentrations in cell culture supernates, serum, and plasma.

PURCHASE INFORMATION:

ELISA Name	Mouse Soluble IL-1R4 ELISA
Catalog No.	SK00120-03
Lot No.	
Formulation	96 T
Standard Range	62.5 ~ 8000 pg/mL
Sensitivity	62.5 pg/mL
Sample Volume	100 µl
Sample Type	Serum, EDTA Plasma, Cell Culture Supernates
Specificity	Mouse sIL-1 R4 only
Sample Dilution	Optimal dilutions should be determined by each laboratory for each application
Intra-assay Precision	4-6%
Inter-assay Precision	8-10%
Storage	2°C - 8°C

FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

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INTRODUCTION

Mouse sIL-1 R4 immunoassay is a 3.5 - 4.5 hour solid phase ELISA designed to measure mouse sIL-1 R4 in cell culture supernates, serum, and plasma. It contains recombinant mouse sIL-1 R4 and antibodies raised against this protein. It has been shown to accurately quantify recombinant mouse sIL-1 R4. Results obtained with naturally occurring sIL-1 R4 samples showed linear curves that were parallel to the standard curves obtained using the kit standards. These results indicate that the immunoassay kit can be used to determine relative mass values for natural mouse sIL-1 R4.

PRINCIPLE OF THE ASSAY

This assay employs the quantitative sandwich enzyme immunoassay technique. A monoclonal antibody specific for mouse sIL-1 R4 has been pre-coated onto a microplate. Standards and samples are pipetted into the wells and any sIL-1 R4 present is bound by the immobilized antibody. After washing away any unbound substances, a biotinylated polyclonal antibody specific for mouse sIL-1 R4 is added to the wells. Following a wash to remove any unbound antibody-biotin reagent, HRP link Streptavidin is added to the wells. After washing away any unbound enzyme, a substrate solution is added to the wells and color develops in proportion to the amount of sIL-1R4 bound in the initial step. The color development is stopped and the intensity of the color is measured.

LIMITATIONS OF THE PROCEDURE

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_ The kit should not be used beyond the expiration date on the kit label.

_ Do not mix or substitute reagents with those from other lots or sources.

_ It is important that the Dilution Buffer selected for the standard curve be consistent with the samples being assayed.

_ If samples generate values higher than the highest standard, dilute the samples with Dilution Buffer and repeat the assay.

_ Any variation in standard diluent, operator, pipetting technique, washing technique, incubation time or temperature, and kit age can cause variation in binding.

_ This assay is designed to eliminate interference by soluble receptors, binding proteins, and other factors present in biological samples. Until all factors have been tested in the immunoassay, the possibility of interference cannot be excluded.

MATERIALS PROVIDED

Description	Code	Quantity
sIL-1 R4 Microplate - 96 well polystyrene microplate (12 strips of 8 wells) coated with a monoclonal antibody against mouse sIL-1 R4**.**	**120-03-01**	**1 plate**
sIL-1 R4 Standard – 8000 pg/vial of recombinant mouse sIL-1 R4 in a buffered protein base with preservatives; lyophilized.	**120-03-02**	**1 vial**
Detection Antibody Concentrate – 105 µL/vial, 100-fold concentrated of Biotinylated polyclonal antibody against mouse sIL-1 R4 with preservatives; lyophilized.	**120-03-03**	**1 vial**
Positive Control - one vial of recombinant mouse sIL-1 R4, lyophilized	**120-03-04**	**1 vial**
Streptavidin-HRP Conjugate - 75 uL/vial, 200-fold concentrated solution of Streptavidin conjugate to HRP with preservatives	**SAHRP**	**1 vial**
Dilution Buffer - 60mL of buffered protein based solution with preservatives	**DB01**	**1 bottle**
Wash Buffer -50 ml of 10-fold concentrated buffered surfactant, with preservative.	**WB01**	**1 bottle**
TMB Substrate Solution- 11 ml of TMB substrate solution	**TMB01**	**1 bottle**
Stop Solution- 11 ml of 0.5M HCl	**S-STOP**	**1 bottle**
Plate Sealer	**EAPS**	**1 piece**

STORAGE

Unopened Kit: Store at 2 - 8° C for up to 6 months. For longer storage, unopened Standard, Positive Control and Detection Antibody Concentrate should be stored at -20°C or -70°C. Do not use kit past expiration date.

Opened / Reconstituted Reagents: Reconstituted Standard and Antibody Solution SHOULD BE STORED at -20°C or – 70°C for up to one month. Streptavidin-HRP Conjugate 200-fold Concentrate and other components may be stored at 2 - 8°C for up to 6 months. *Diluted standard working solution and positive control should be prepared and used immediately*.

Microplate Wells: Return unused wells to the plastic bag containing the desiccant pack, reseal along entire edge of zip-seal. Microplate may be stored for up to 6 months at 2 - 8°C.

OTHER SUPPLIES REQUIRED

- Microplate reader capable of measuring absorbance at 450 nm, with the correction wavelength set at 540 nm or 570 nm.
- Microplate shaker (250-300rpm).
- Pipettes and pipette tips.
- Deionized or distilled water.
- Squirt bottle, manifold dispenser, or automated microplate washer.
- 100 mL and 500 mL graduated cylinders.

SAMPLE COLLECTION AND STORAGE

Cell Culture Supernates - Remove particulates by centrifugation and assay immediately or aliquot and store samples at ≤-20° C. Avoid repeated freeze-thaw cycles.

Serum - Use a serum separator tube (SST) and allow samples to clot for 30 minutes before centrifugation for 15 minutes at 1000 x g. Remove serum and assay immediately or aliquot and store samples at ≤ -20° C. Avoid repeated freeze-thaw cycles.

Plasma - Collect plasma using EDTA, heparin, or citrate as an anticoagulant. Centrifuge for 15 minutes at 1000 x g within 30 minutes of collection. Assay immediately or aliquot and store samples at ≤-20° C. Avoid repeated freeze-thaw cycles.

SAMPLE PREPARATION

Optimal dilutions should be determined by each laboratory for each application.

Use polypropylene test tubes.

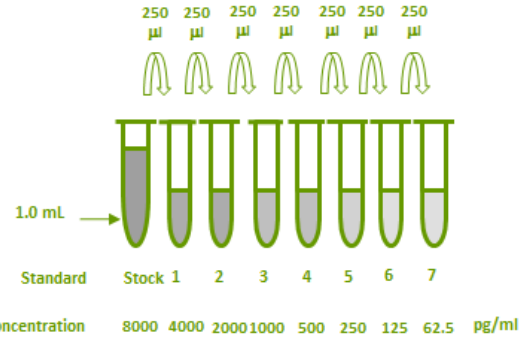
REAGENT PREPARATION

Bring all reagents to room temperature before use.

Wash Buffer - If crystals have formed in the concentrate, warm to room temperature and mix gently until the crystals have completely dissolved. Dilute 50 mL of Wash Buffer Concentrate into deionized or distilled water (450 mL) to prepare 500 mL of Wash Buffer.

sIL-1 R4 Standard - Refer to vial label for reconstitution volume. Reconstitute the **sIL-1 R4** standard with 1.0 ml of Dilution Buffer. This reconstitution produces a stock solution of 8000 pg/mL. Allow the standard to sit for a minimum of 15 minutes with gentle agitation prior to making dilutions. Pipette 250 µL of Dilution Buffer into tubes #1 to #7. Use the stock solution to produce a dilution series (below). Mix each tube thoroughly before the next transfer. The 8000 pg/mL standard serves as the high standard. The Dilution Buffer serves as the zero standard (0 pg/mL).

TUBE	STANDARD	DILUTION BUFFER	CONCENTRATION
Stock	Powder	1000 µl	8000 pg/ml
# 1	250 µl of stock	250 µl	4000 pg/ml
# 2	250 µl of 1	250 µl	2000 pg/ml
# 3	250 µl of 2	250 µl	1000 pg/ml
# 4	250 µl of 3	250 µl	500 pg/ml
# 5	250 µl of 4	250 µl	250 pg/ml
# 6	250 µl of 5	250 µl	125 pg/ml
# 7	250 µl of 6	250 µl	62.5 pg/ml



Positive Control - Reconstitute the **Positive Control** with 1.0 mL of Dilution Buffer. *Positive Control should be prepared and used immediately*.

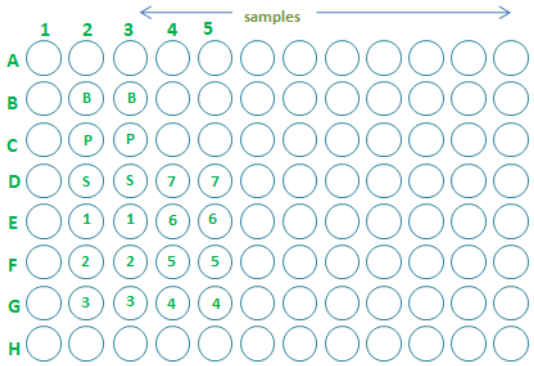
Detection Antibody - Reconstitute the **Detection Antibody Concentrate** with 105 µl of Dilution Buffer to produce a 100-fold concentrated stock solution. Pipette 10.395 mL of Dilution Buffer into a 15 ml centrifuge tube and transfer 105 µl of 100-fold concentrated stock solution to prepare working solution.

Streptavidin-HRP Conjugate - Pipette 11.94 mL of Dilution Buffer into a 15 ml centrifuge tube and transfer 60 µl of 200-fold concentrated stock solution to prepare working solution.

ASSAY PROCEDURE

Bring all reagents and samples to room temperature before use. It is recommended that standards and positive control be assayed in duplicates.

1. Prepare all reagents and working standards as directed in the previous sections.
2. Remove excess micro-plate strips from the plate frame, return them to the plastic pouch containing the desiccant pack, reseal.
3. Add 100 µL of Dilution Buffer to Blank wells (B2, B3).
4. Add 100 µL of Standard (D2, D3 to G2, G3 to D4, D5 to G4, G5), sample, or positive control (C2, C3) per well. Cover with plate sealer. Incubate for 2 hours on plate shaker at room temperature. A plate layout is provided to record standards and samples assayed.
5. Aspirate each well and wash, repeating the process three times for a total of four washes. Wash by filling each well with Wash Buffer (300 µL) using a squirt bottle, manifold dispenser, or autowasher. Complete removal of liquid at each step is essential to good performance. After the last wash, remove any remaining Wash Buffer by aspirating or decanting. Invert the plate and blot it against clean paper towels.
6. Add 100 µL of Detection Antibody working solution to each well. Cover with plate sealer. Incubate for 2 hours on plate shaker at room temperature.
7. Repeat the aspiration/wash as in step 5.
8. Add 100 µL of Streptavidin-HRP Conjugate working solution to each well. Incubate for 1 hour on plate shaker at room temperature. **Protect from light.**
9. Repeat the aspiration/wash as in step 5.
10. Add 100 µL of Substrate Solution to each well. Incubate for 12-18 minutes at room temperature. **Protect from light.**
11. Add 100 µL of Stop Solution to each well. The color in the wells should change from blue to yellow. If the color in the wells is green, or if the color change does not appear uniform, gently tap the plate to ensure thorough mixing.
12. Determine the optical density of each well within 15 minutes, using a micro-plate reader set to 450 nm.



CALCULATION OF RESULTS

Average the duplicate readings for each standard, positive control, and sample and subtract the average zero standard optical density. Create a standard curve by reducing the data using computer software capable of generating a log-log curve fit. As an alternative, construct a standard curve by plotting the mean absorbance for each standard on the y-axis against the concentration on the x-axis and draw a best fit curve through the points on the graph. The data may be linearized by plotting the log of the sIL-1 R4 concentrations versus the log of the O.D. and the best fit line can be determined by regression analysis. This procedure will produce an adequate but less precise fit of the data.

If samples have been diluted, the concentration read from the standard curve must be multiplied by the dilution factor.

CALIBRATION

This immunoassay is calibrated against a highly purified *Sf*21-expressed recombinant mouse sIL-1 R4/Fc Chimera.

TYPICAL DATA

This standard curve is provided for demonstration only. A standard curve should be generated for each set of samples assayed.

STANDARD (PG/ML)	O.D. AT 450NM (CORRECTED)
Blank	0 (0.107)
62.5	0.013
125	0.022
250	0.039
500	0.092
1000	0.180
2000	0.380
4000	0.812
8000	1.765

Lot:
PC: 600 – 1200 pg/ml

SENSITIVITY

Twenty-five assays were evaluated and the minimum detectable dose (MDD) of sIL-1 R4 was 62.5 pg/mL.

SPECIFICITY

This assay recognizes both natural and recombinant mouse sIL-1 R4. The factors listed below were prepared at 100 ng/mL in Dilution Buffer, and assayed for cross reactivity. Preparations of the following factors at 100 ng/mL in a mid-range rh sIL-1 R4 control were assayed for interference. No significant cross-reactivity or interference was observed.

Mouse Recombinant Proteins
IL-1 R1/Fc Chimera
IL-1 R2/Fc Chimera
Il-1 R6
IL-1 α
IL-1 β

Human Recombinant Proteins
IL-1 R4/Fc Chimera

SUMMARY OF ASSAY PROCEDURE

Prepare reagents, samples and standards

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Add 100µl of standard, samples, positive control to each well. Incubate 2 hours on the plate shaker at RT.

↓

Aspirate and wash 4 times.

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Add 100 µl Detection Antibody working solution to each well. Incubate 2 hours on the plate shaker at RT.

↓

Aspirate and wash 4 times.

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Add 100 µl Streptavidin-HRP conjugate working solution to each well. Incubate 1 hour on the plate shaker at RT. **Protect from light.**

↓

Aspirate and wash 4 times.

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Add 100 µl Substrate Solution to each well. Incubate 12-18 min on the bench top. **Protect from light.**

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Add 100 µl Stop Solution to each well. Read 450nm within 15 min